

The Consumption Function in an Islamic Context: General Modeling Framework

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Abstract— In this paper, more attention will be given to mathematical formulation and econometric modeling of economic phenomena on the basis of Islamic rules and regulations the first component of the demand, namely, the consumption function in the Islamic context will be targeted.

Keywords— Consumption function; Islamic context; Islamic rules; mathematical formulation; econometric modeling.

I. INTRODUCTION

".... The first "socializing" moment of the Islamic economy (in the 1950s and 1960s), rather narrative and theological-philosophical, will give way to the Islamic finance, technical and modeled merging into financial modeling ".² The literature review of the Islamic economics thought has targeted different aspects. More efforts were on the comparison with other economic schools (socialist, capitalist ...) or an influx of criticisms of other doctrines outside Islam or treating certain number of specific cases of Islam such as zakat, interest (Riba), etc... This is now accessible to everyone. However, it was an opportunity to give comprehensive and in-depth models of Islamic economic thought.

The objective of this paper is to explore the issue to formulate and apply mathematics to Islamic economic thought³ in the perspective of a potential global modeling according to Islamic rules and regulation.

This proposal goes no further more than what has been achieved in this issue, as confirmed by Khaled Sor (2012): "In the 1980s, the successors of Abul Ala Mawdudi and

Muhammad Baqer as-Sader have proposed more economic oriented analyses, making extensive use of mathematics and econometric models (Haneef; 1995). Kahf (1940), Abdul Mannan (1932), Khurshid (1932), Chapra (1933), Naqvi from the 1980s onwards much less explicitly politicized and therefore less marked by comparative logics (Haneef 1995, Wilson 1998). "⁴

So, in this paper, more attention will be given to mathematical formulation and econometric modeling of economic phenomena on the basis of Islamic rules and regulations the first component of the demand, namely, the consumption function in the Islamic context will be targeted.

1: The function of consumption in Islamic economics: general modeling framework

Within the Islamic context we have several economic agents. Mainly, we have seven groups of human being:

Group 1: Those who consume and spend in the name of God voluntarily⁵ without being subject to obligatory expenses in the name of God as the Zakat

Group 2: Those who consume and spend in the name of God voluntarily and who are subject to compulsory expenditure (taxpayers)

Group 3: Those who consume and are subject to compulsory expenditure (taxpayers) and are not allowed to spend voluntarily

Group 4: Those who consume and are not subject to compulsory expenditure and who do not wish to make voluntary expenditure

Group 5: Those who consume and are entitled to receive compulsory expenditure (entitled)

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²Khalid Sor (2012); "From economy to Islamic finance: itinerary of the adjustment of an identity product to liberal globalization" in religion scope; Studies and analyzes N ° 24 (Translated from French)

³Given the space reserved for the article, we will content ourselves with an attempt to formulate the function of consumption from the Islamic point of view.

⁴Khalid Sor (2012); "From economy to Islamic finance: itinerary of the adjustment of an identity product to liberal globalization" in religion scope; Studies and analyzes N ° 24 (Translated from French)

⁵"Those who spend their goods in the way of Allah are like a grain from which seven ears of corn are born, one hundred grains on the ear. For Allah multiplies the reward to whom He wills and the grace of Allah is immense, and He is All-knowing. (Al-Baqara: 261)

Group 6: Those who consume and benefit only from the voluntary expenditure of other payers

Group 7: Those who consume and benefit from both voluntary and compulsory expenditure

Either:

C_1 : The consumption of the first group

C_2 : The consumption of the second group

C_3 : The consumption of the third group

C_4 : Consumption of the fourth group

C_5 : The consumption of the fifth group

C_6 : The consumption of the sixth group

C_7 : The consumption of the seventh group

$C = C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7$ can be defined as a macroeconomic consumption function or overall consumption.

If we consider the following variables:

Z : The Zakat (it is assumed that this is the only obligatory expense in Islam)

DD : Voluntary expenditure in the name of God

R : Income of the group

As long as income is the main variable affecting consumption - anything else remains equal - the equations of our model can be defined as follows:

$$C_1 = C_0 + \beta(R - DD)$$

$$C_2 = C_0 + \beta(R - Z - DD)$$

$$C_3 = C_0 + \beta(R - Z)$$

$$C_4 = C_0 + \beta R$$

$$C_5 = Z$$

$$C_6 = DD$$

$$C_7 = Z + DD$$

β : The marginal propensity to consume ($0 < \beta < 1$)

By replacing each type of consumption by its expression, we obtain the following macroeconomic consumption function:

$$\begin{aligned} C &= C_0 + \beta(R - DD) + C_0 + \beta(R - Z - DD) + C_0 + \beta(R - Z) + C_0 + \beta R + Z + DD + Z + DD \\ &= 4C_0 + \beta(R - DD + R - Z - DD + R - Z + R) + Z + DD + Z + DD \\ &= 4C_0 + \beta(4R - 2DD - 2Z) + Z + DD + Z + DD \\ &= 4C_0 + \beta(4R - 2DD - 2Z) + 2Z + 2DD \\ &= 4C_0 + 4\beta R - 2\beta DD - 2\beta Z + 2Z + 2DD \\ &= 4C_0 - 2(\beta DD + \beta Z - Z - DD) + 4\beta R \\ &= 4C_0 + 2(\beta DD - \beta Z + Z + DD) + 4\beta R \end{aligned}$$

2: Non-compressed consumption in the Islamic economy: a guarantee of decent living

Before proceeding to the derivation of the propensities to consume, it would be wise to analyze the non-compressed consumption of this function, which is based on the Islamic fundaments relating to consumption.

Indeed, if we note C_{0I} as the non-compressed Islamic consumption, the function is:

$$\begin{aligned} C_{0I} &= 4C_0 + 2(\beta DD - \beta Z + Z + DD) \\ \Rightarrow C_{0I} &= 2(2C_0 + \beta DD - \beta Z + Z + DD) \\ \Rightarrow C_{0I} &= 2(2C_0 + DD(1 + \beta) + Z(1 - \beta)) \end{aligned}$$

It is clear that consumption without income is very strong in the Islamic economy, this show that individuals who have no income are very secure by this economic system. We know that $0 \leq \beta \leq 1$, so if we take the two extreme cases of the marginal propensity to consume which equivalent to $\beta=0$ and $\beta=1$ we can have the following formula:

If $\beta=0$, that means income-holders are not allocating a part of income variation to consumption. In this case the equation is:

$$C_{0I} = 2(2C_0 + DD + Z)$$

This leads us to say that even if the economic agents who have a given amount of income, they don't allocate it to consumption. The second category of economic agents those without income, they benefit, nevertheless, of a very important non-compressed consumption reinforced by the voluntary expenses in the name of God and the Zakat.

If $\beta=1$, in the case, income holders give the entire variation of income to consumption. So we will have:

$$C_{0I} = 2(2C_0 + 2DD)$$

The equation shows that economic agents, who hold an income, consume all additional income, so they are not subject to Zakat. So we notice that the non-compressed consumption can decrease. However this decrease is compensated by the increase of the voluntary expenses in the name of the God.

We can conclude that economic agents without income are always secured by the Islamic economic system. The

different Islamic rules offer more security through equitable income distribution within the whole system.

3 Towards a marginal propensity to consume more:

Since the marginal propensity to consume is the first derivative of the consumption function, it can be calculated in an Islamic context as follow:

$$\frac{\partial C}{\partial R} = 4\beta$$

Since this marginal propensity to consume is always between zero and one; $0 < 4\beta < 1$. It should be pointed out here that the marginal propensity to consume in an Islamic context is 4 times more than in a capitalist economy. As consumption is the main component of the demand and given the above formulation it seems that the consumption trend is strong in the context of Islamic economy because all categories are involved (concerned) by consumption by strengthening their purchasing power (Zakat, Sadaqa spending in the name of God).

4 Towards a higher average propensity to consume:

The average propensity to consume is the share of income given to consumption and therefore can be calculated as follows:

$$\begin{aligned} \frac{C}{R} &= \frac{4C_0 + \beta(4R - 2DD - 2Z) + 2Z + 2DD}{R} \\ &= \frac{4C_0}{R} + \frac{4\beta R}{R} - \frac{2\beta DD}{R} - \frac{2\beta Z}{R} + \frac{2Z}{R} + \frac{2DD}{R} \\ &= \frac{4C_0 - 2\beta DD - 2\beta Z + 2Z + 2DD}{R} + 4\beta \\ &= \frac{4C_0 - 2(\beta DD - \beta Z + Z + DD)}{R} + 4\beta \\ &= \frac{4C_0 - 2[DD(\beta + 1) - Z(\beta - 1)]}{R} + 4\beta \end{aligned}$$

Assuming that economic agents are not paying the Zakat and all expenses in the name of God, then the marginal propensity to consume is stronger compared to the marginal propensity to consume in the capitalist economy!

As a result, it can be said that Muslim consumers allow a large part of their income to consumption and this, for sure leads to the improvement of the national demand, which

improves investment as the main engine of economic growth.

II. CONCLUSION

According to this simple analysis, it can be concluded that consumption in the Islamic economy is very strong and greatly strengthened by expenditures on Zakat and in the name of God. This dynamics of consumption will, necessarily affects the demand which the most stimulator of investment and then employment.

An empirical application of such model can enrich this possibility and offer the opportunity to computerize concrete situations. Economic research in such a system will have implications on the functioning of Islamic banks and offer solutions to consumer and investment issues. To do so more multidisciplinary team efforts are needed to combine economic theory, chariaa (Islamic rules) and law.

REFERENCES

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